ABSTRACT OF THE DISCLOSURE

In a manufacturing process of a semiconductor device, when harmonic of CW laser is irradiated to a semiconductor film with relatively scanning the harmonic, several long crystal grains extending in a scanning direction are formed. In the scanning direction, thus formed semiconductor film is substantially close to a single crystal in characteristic. However, the output of the harmonic of the CW laser is small to cause a low annealing efficiency. In the present invention, aid for the output is performed by irradiating second harmonic of CW laser and a fundamental wave of CW laser at the same time to the same portion. In general, the fundamental wave has a wavelength band around 1μm, and is not well absorbed in a semiconductor film. When the harmonic with a wavelength of visible light or a shorter wavelength than visible light is irradiated at the same time as the fundamental wave to a semiconductor film, the annealing efficiency is remarkably increased since the fundamental wave is well absorbed in the semiconductor film melted by the harmonic.